a signal strength indicator which determines the quality of a signal received by a mobile unit; and

a speech coder selector in the mobile unit which causes the mobile unit to use a secondary speech coder when the signal strength exceeds a set value, wherein the secondary speech coder is less accurate than a primary speech coder.

28. (Amended) The wireless communication system of Claim 27, wherein the speech coder selector causes the mobile unit to use the primary speech coder when the loading on the processor is less than a set value.

30. (Twice amended) A wireless communication system comprising;

means for determining the quality of a signal received; and

means for switching in a mobile unit from a first speech coder to a second speech coder when the signal quality exceeds a predetermined value, wherein the second speech coder is less accurate than the first speech coder.

35. (Amended) A wireless communication system comprising;

means for determining the loading on a processor; and

means for switching in a mobile unit from a first speech coder to a second speech coder when the processor loading is less than a set value, wherein the second speech coder is less accurate than the first speech coder.

REMARKS

The foregoing amendments and the following comments are responsive to the objections and rejections set forth by the Examiner in the March 11, 2002 Office Action.

Claims 1-38 are pending in this application. The Examiner rejected Claims 1-38. In particular, the Examiner rejected Claims 1-6, 8-19, 21-33 and 35-38 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,885,003 ("the Ladden patent") in view of U.S. Patent No. 6,130,577 ("the Tamba patent"). The Examiner further rejected Claims 7, 20 and 34 under 35 U.S.C. § 103(a) as being unpatentable over the Ladden patent in view of the Tamba patent and further in view of U.S. Patent No. 5,469,471 ("the Wheatley III patent").

Applicant would like to thank Examiner Opsasnick for the telephone interview extended to Applicant's counsel of record, John R. King, on June 10, 2002. During the interview, the Examiner agreed that the amendments to Claim 1 clarified the patentably distinguishing features of the invention. Accordingly, Applicant has also amended Claims 8, 18, 27, 30 and 35 along the lines discussed in the interview. Reconsideration of the pending claims, as amended, is therefore respectfully requested.

REJECTION OF CLAIMS 1, 8, 18, 27, 30 and 35 UNDER 35 U.S.C. § 103(a)

The Examiner rejected Claims 1, 8, 18, 27, 30 and 35 under 35 U.S.C. § 103(a) as being unpatentable over the Ladden patent in view of the Tamba patent. In view of the above claim amendments and the following discussion, Applicant respectfully traverses this rejection.

According to the Examiner, the Ladden patent teaches a wireless communication system comprising a base station which transmits signals, a mobile unit having codec A and codec B, a signal strength detector in the mobile unit, and a code selector in the mobile unit which sends messages to switch to an alternate codec if the signal quality is poor. Also, according to the Examiner, the Tamba patent teaches self contained switching of the codecs in the wireless device and it would be obvious to one of ordinary skill in the art to modify Ladden with Tamba because it would provide higher speed access and accuracy.

Applicant disagrees with the Examiners assessment of the location of the coder selector in the Ladden patent. Ladden teaches a speech recognition system that evaluates the speech quality and sends messages to the mobile unit to switch codecs. The speech recognition system is located in the base station. (See column 5, lines 30-38, Figure 2 and Figure 3.) Ladden further discloses "a quality sensor within the SRS could determine that speech being interpreted is of poor quality, and notify the BSS that a change in codec is required." (Column 5, lines 33-35.)

Tamba teaches a modes switching control unit for controlling the switching between the PHS and the PDC modes, based on the output of the received field strength detection circuit. It appears that Tamba teaches the use of an alternate coder

to increase signal quality. Thus, it appears that both Ladden and Tamba switch to an alternate coder to improve signal quality.

In contrast, in at least one embodiment of the invention, the mobile unit determines the quality of signals received from the base station and, based on this quality, determines whether the voice data can be adequately transmitted using an alternative speech coder. In one embodiment, the alternative coder is directed to reducing processor usage and to consuming less battery power in the mobile unit. In another embodiment, the alternative speech coder is less accurate than the primary speech coder in coding and decoding the voice data. Furthermore, in one embodiment, the primary speech coder is a bit-exact speech coder and the secondary speech coder is not bit-exact. (See page 11, lines 17-18.) The applicant's disclosure further teaches:

> Use of a bit-exact speech coder consumes more battery power and requires more processor power than a non bit-exact speech coder. For example, encoding with a bit-exact speech coder results in approximately 95% processor loading, while encoding with a related non bit-exact speech coder results in approximately 35% processor loading. This is because a bit-exact speech coder must ensure an exact sequence of bits are output for each given input. This typically requires a more complex algorithm. The bit-exact speech coder also consumes significantly more battery power. If a non bit-exact speech coder may be used without significant degradation of the signal, the processor 125 may be used to run other features and the usable life of the battery may be extended. (See page 11, line 22-page 12 line 2.)

In contrast, even if the coder selector in Ladden is located in the mobile unit, neither Ladden nor Tamba, alone or in combination, disclose, teach or suggest the use of determining the quality of the signals received in the mobile unit so as to switch coders in order to reduce power consumption in the mobile unit. Furthermore, neither Ladden nor Tamba, alone or in combination, disclose, teach or suggest the use of switching to a less accurate coder if the determined signal quality is high.

Applicant asserts that Claims 1, 8, 18, 27, 30 and 35 are not obvious in view of Ladden and Tamba. Applicant therefore respectfully submits that Claims 1, 8, 18, 27, 30 and 35 are patentably distinguished over the cited references and Applicant respectfully requests allowance of Claims 1, 8, 18, 27, 30 and 35.

REJECTION OF CLAIMS 2-6, 9-17, 19, 21-26, 28, 29, 31-33 and 36-38 UNDER 35 U.S.C. § 103(a)

The Examiner rejected Claims 2-6, 9-17, 19, 21-26, 28, 29, 31-33 and 36-38 under 35 U.S.C. § 103(a) as being unpatentable over the Ladden patent in view of the Tamba patent. In view of the above claim amendments and the following discussion, Applicant respectfully traverses this rejection.

By this amendment, Applicant has canceled Claim 4 without prejudice of disclaimer. Accordingly, Applicant respectfully requests the Examiner to withdraw the objection under 35 U.S.C. § 103(a).

Claims, 2, 3, 5-6, which depend from Claim 1, are believed to be patentable for the same reasons articulated above with respect to Claim 1, and because of the additional features recited therein.

Claims 9-17, which depend from Claim 8, are believed to be patentable for the same reasons articulated above with respect to Claim 8, and because of the additional features recited therein.

Claims 19, 21-26, which depend from Claim 18, are believed to be patentable for the same reasons articulated above with respect to Claim 18, and because of the additional features recited therein.

Claims 28 and 29, which depend from Claim 27, are believed to be patentable for the same reasons articulated above with respect to Claim 27, and because of the additional features recited therein.

Claims 31-33, which depend from Claim 30, are believed to be patentable for the same reasons articulated above with respect to Claim 30, and because of the additional features recited therein.

Claims 36-38, which depend from Claim 35, are believed to be patentable for the same reasons articulated above with respect to Claim 35, and because of the additional features recited therein.

REJECTION OF CLAIMS 7, 20, 34 UNDER 35 U.S.C. § 103(a)

The Examiner rejected Claims 7, 20, 34 under 35 U.S.C. § 103(a) as being unpatentable over the combination of Ladden in view of the Tamba patent, and further

in view of Wheatley III. In view of the above claim amendments and the following discussion, Applicant respectfully traverses this rejection.

Claim 7, which depends from Claim 1, is believed to be patentable for the same reasons articulated above with respect to Claim 1, and because of the additional features recited therein.

Claim 20, which depends from Claim 18, is believed to be patentable for the same reasons articulated above with respect to Claim 18, and because of the additional features recited therein.

Claim 34, which depends from Claim 30, is believed to be patentable for the same reasons articulated above with respect to Claim 30, and because of the additional features recited therein.

CONCLUSION

In view of the forgoing, the present application is believed to be in condition for allowance, and such allowance is respectfully requested. If further issues remain to be resolved, the Examiner is cordially invited to contact the undersigned such that any remaining issues may be promptly resolved. Also, please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 6/11/02

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Version With Markings to Show Changes Made

IN THE CLAIMS:

1. (Twice amended) A wireless communication system comprising:

a base station which transmits signals;

a mobile unit which receives the signals from the base station, the mobile unit containing a first speech coder and a second speech coder, wherein the first speech encoder is bit-exact and the second speech encoder is not bit-exact, the mobile unit encoding voice data in a signal to transmit using either the first speech coder or the second speech coder;

a signal strength detector in the mobile unit which determines the quality of the signals received by the mobile unit; and

a coder selector in the mobile unit which directs the mobile unit to switch from the first speech coder to the second speech coder when the quality of the signals exceeds predetermined levels, wherein the second speech encoder reduces power consumption in the mobile unit.

5. (Amended) The wireless communication system of Claim [4]1, wherein the first speech coder and the second speech coder are compatible.

8. (Twice amended) A method of conserving power in a wireless communication system comprising the acts of:

determining the quality of at least one signal received from a base station; and

selecting in a mobile unit a secondary speech coder when the signal quality exceeds a predetermined value, wherein the secondary speech coder is less accurate than a primary speech coder.

18. (Twice amended) A wireless communication system comprising;

a processor usage indicator which determines the loading on a processor in a mobile unit; and

a speech coder selector in a mobile unit which causes the mobile unit to use a secondary speech coder when the loading on the processor exceeds a set

value, wherein the secondary speech coder is less accurate than a primary speech coder.

22. (Amended) The wireless communication system of Claim 18, wherein the speech coder selector causes the mobile unit to use thea primary speech coder when the loading on the processor is less than a set value.

27. (Twice amended) A wireless communication system comprising;

a signal strength indicator which determines the quality of a signal received by a mobile unit; and

a speech coder selector in the mobile unit which causes the mobile unit to use a secondary speech coder when the signal strength exceeds a set value, wherein the secondary speech coder is less accurate than a primary speech coder.

28. (Amended) The wireless communication system of Claim 27, wherein the speech coder selector causes the mobile unit to use thea primary speech coder when the loading on the processor is less than a set value.

30. (Twice amended) A wireless communication system comprising;

means for determining the quality of a signal received; and

means for switching in a mobile unit from a first speech coder to a second speech coder when the signal quality exceeds a predetermined value, wherein the second speech coder is less accurate than the first speech coder.

35. (Amended) A wireless communication system comprising;

means for determining the loading on a processor; and

means for switching in a mobile unit from a first speech coder to a second speech coder when the processor loading is less than a set value, wherein the second speech coder is less accurate than the first speech coder.

Exhibit I - Clean Version Of Pending Claims

1. (Twice amended) A wireless communication system comprising:

a base station which transmits signals;

a mobile unit which receives the signals from the base station, the mobile unit containing a first speech coder and a second speech coder, wherein the first speech encoder is bit-exact and the second speech encoder is not bit-exact, the mobile unit encoding voice data in a signal to transmit using either the first speech coder or the second speech coder;

a signal strength detector in the mobile unit which determines the quality of the signals received by the mobile unit; and

a coder selector in the mobile unit which directs the mobile unit to switch from the first speech coder to the second speech coder when the quality of the signals exceeds predetermined levels, wherein the second speech encoder reduces power consumption in the mobile unit.

2. The wireless communication system of Claim 1, wherein the coder selector switches from said second speech coder to said first speech coder when the quality of the signals is less than the predetermined levels.

3. The wireless communication system of Claim 1, wherein the coder selector may be bypassed.

4. (Cancelled)

5. (Amended) The wireless communication system of Claim 1, wherein the first speech coder and the second speech coder are compatible.

6. The wireless communication system of Claim 1, wherein the signal strength detector measures the estimated frame-by-frame bit error rate.

7. The wireless communication system of Claim 1, wherein the signal strength detector is based upon absolute power.

8. (Twice amended) A method of conserving power in a wireless communication system comprising the acts of:

determining the quality of at least one signal received from a base station; and

selecting in a mobile unit a secondary speech coder when the signal quality exceeds a predetermined value, wherein the secondary speech coder is less accurate than a primary speech coder.

9. The method of Claim 8 further comprising the act of selecting a primary speech coder when the signal quality is less than the predetermined value.

10. The method of Claim 8, wherein the act of selecting a secondary speech coder may be selectively activated.

11. The method of Claim 8, wherein the secondary speech coder is not bit-exact.

12. The method of Claim 8, wherein the secondary speech coder is one of a family of speech coders.

13. The method of Claim 8, wherein the secondary speech coder saves power.

14. The method of Claim 8, wherein the secondary speech coder reduces processor loading.

15. The method of Claim 8, wherein the quality of signals received is determined by the RX Quality.

16. The method of Claim 8, wherein the quality of signals received is determined by the estimated frame-by-frame bit error rate.

17. The method of Claim 8, wherein the quality of signals received is determined by a parity check.

18. (Twice amended) A wireless communication system comprising;

a processor usage indicator which determines the loading on a processor in a mobile unit; and

a speech coder selector in a mobile unit which causes the mobile unit to use a secondary speech coder when the loading on the processor exceeds a set value, wherein the secondary speech coder is less accurate than a primary speech coder.

19. The wireless communication system of Claim 18, wherein the speech coder selector may be selectively activated.

20. (Amended) The wireless communication system of Claim 18, wherein the secondary speech coder saves power.

21. (Amended) The wireless communication system of Claim 18, wherein the secondary speech coder reduces processor loading.

22. (Amended) The wireless communication system of Claim 18, wherein the speech coder selector causes the mobile unit to use the primary speech coder when the loading on the processor is less than a set value.

23. The wireless communication system of Claim 22, wherein the primary speech coder and the secondary speech coder are members of a family of speech coders.

24. (Amended) The wireless communication system of Claim 23, wherein the secondary speech coder is not bit-exact.

25. (Amended) The wireless communication system of Claim 23, wherein the primary speech coder is bit-exact.

26. (Amended) The wireless communication system of Claim 23, wherein the secondary speech coder is one of a family of speech coders.

27. (Twice amended) A wireless communication system comprising;

a signal strength indicator which determines the quality of a signal received by a mobile unit; and

a speech coder selector in the mobile unit which causes the mobile unit to use a secondary speech coder when the signal strength exceeds a set value, wherein the secondary speech coder is less accurate than a primary speech coder.

28. (Amended) The wireless communication system of Claim 27, wherein the speech coder selector causes the mobile unit to use the primary speech coder when the loading on the processor is less than a set value.

29. The wireless communication system of Claim 27, wherein the speech coder selector may switch between the primary speech coder and the secondary speech coder each frame.

30. (Twice amended) A wireless communication system comprising;

means for determining the quality of a signal received; and

means for switching in a mobile unit from a first speech coder to a second speech coder when the signal quality exceeds a predetermined value, wherein the second speech coder is less accurate than the first speech coder.

31. The wireless communication system of Claim 30, wherein the means for switching switches from the second speech coder to the first speech coder when the signal quality is below the predetermined value.

32. The wireless communication system of Claim 30, wherein the second speech coder consumes less power than the first speech coder.

33. The wireless communication system of Claim 30, wherein the switching means is software controlled.

34. The wireless communication system of Claim 30, wherein the predetermined value may be dynamically adjusted.

35. (Amended) A wireless communication system comprising;

means for determining the loading on a processor; and

means for switching in a mobile unit from a first speech coder to a second speech coder when the processor loading is less than a set value, wherein the second speech coder is less accurate than the first speech coder.

36. The wireless communication system of Claim 35, wherein the means for switching switches from the second speech coder to the first speech coder when the processor loading is less than a set value.

37. The wireless communication system of Claim 35, wherein the switching means may be selectively disabled.

38. The wireless communication system of Claim 35, wherein the first speech coder and the second speech coder are members of a family of speech coders.